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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,923	12/08/2003	Kia Silverbrook	ZG117US	9693
24011	7590	06/29/2005	EXAMINER	
SILVERBROOK RESEARCH PTY LTD 393 DARLING STREET BALMAIN, 2041 AUSTRALIA			MITCHELL, JAMES M	
			ART UNIT	PAPER NUMBER
			2813	

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/728,923

Applicant(s)

SILVERBROOK, KIA

Examiner

James M. Mitchell

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/12/12/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the application filed December 8, 2003.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 4, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer (U.S. 4,701,999) in combination with Cordes (U.S. 6,390,439) and Ohara et al. (U.S. 5,739,585).

4. Palmer (Fig. 9,10) discloses:

(cl. 1) a method of fabricating a mold for protective caps which will be applied to a wafer, the method comprising the steps of: fabricating a first and a second cooperating mold halves (68,69), the first half and second halves, when brought together defining an array of mold cavities.

5. With respect to the intended use limitation of claims 1, 3, 4 that "cavities for...caps," and "intended for attachment to a wafer¹," Palmer discloses an array of caps (i.e. top and bottom, 50) and forms the same structure/product as claimed by applicant. As such, the intended use limitation does not impart patentability, since it has been held that the manner in which a claimed apparatus is intended to be employed

¹ With respect to the caps/wafer, because their antecedent relies on an intended use, not an affirmative recitation, neither a cap or wafer is affirmatively claimed as apart of the product. As such, limitations detailing those items do impart patentability, because they are not apart of the final product.

Art Unit: 2813

does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

6. Palmer does not explicitly disclose that its mold is a silicon, semiconductor or that it's formed using lithography.

7. Cordes utilizes a semiconductor, silicon mold and wafer (Abstract; Col. 10, Lines 39-44) that are transparent to infrared (i.e. "silicon").

8. It would have been obvious to one of ordinary skill in the art to form the mold of Palmer from silicon (i.e. transparent to infrared) in order to provide CTE matching of semiconductors to be packaged thereby eliminating shifting as taught by taught by Cordes (Col. 10, Lines 39-42).

9. Furthermore, the use of silicon for CTE matching would have been obvious, since it has been held that to be within the general skill of a worker in the art to select known material on the basis of its suitability for intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416 (CCPA 1960).

10. Ohara discloses forming cavities by lithography (Col. 6-7, Lines 58-35).

11. It would have been obvious to one of ordinary skill in the art to form the modified mold of Palmer and Cordes using lithography in order to form the cavity in the mold that is required by Palmer (70).

12. Claims 2, 5, 7, 8, 12,14, 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer (U.S. 4,701,999), Cordes (U.S. 6,390,439) and Ohara et al.

Art Unit: 2813

(U.S. 5,739,585) as applied to claim 1, and further in combination with Mishima (U.S. 6,530,764) and Miyajima (U.S. 6,344,162).

13. The prior art discloses the element stated in paragraphs 4-11 of this office action and further its cavity corresponding to a wafer portion (35), but does not appear to show recesses formed in first half and grooves in the second half with the recesses and grooves forming the mold cavities, the first and/or second half includes holes formed through it and the holes located in registry with recess, there being provided a first half release wafer from which project pins, the located in registry with first holes, the first half having a thickness in the area of the first holes and the pins being longer than the thickness, the first/second half release wafer having a first portion, and pins flush with an interior end of holes with a gap between release wafer and first/second half.

14. However, Mishima utilizes (Fig.7) recesses (36) formed in first half and grooves (28) in the second half with the recesses and grooves forming the mold cavities, first and/or second half (35a,b) includes holes (i.e. space taken by item 28) formed through it and the holes located in registry with recess, the first half having a thickness in the area of the first holes and pins (28) being longer than the thickness.

15. It would have been obvious to one of ordinary skill in the art to form the mold of Palmers with recesses/grooves formed in first half and grooves/recesses in the second half, and to incorporate ejector pins in the first and second half of the mold in order to package multiple devices and eject them as taught by Mishima (Col. 2, Lines 18-35; Fig. 7).

16. The modified process of Palmer fails to show the use of a release wafer incorporated with its molding device such that pins would be flush with an interior end of holes with a gap between release wafer and first/second half.

17. Miyama utilizes a molding device with ejector pins (28) flush with an interior end of holes with a gap (i.e. space immediately adjacent tip of pin; Fig. 7) between release wafer (40) and first/second half (21).

18. It would have been obvious to one of ordinary skill in the art to incorporate a release wafer to the modified process of Palmer, to better assist in the removal of the package as taught by Miyama ("release film"; Abstract).

19. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer (U.S. 4,701,999), Cordes (U.S. 6,390,439) and Ohara et al. (U.S. 5,739,585) as applied to claim 1 and further in combination with Pogge et al. (U.S. 5,866,443).

20. With respect to the use of a cryogenic etch, the modified process including Ohara discloses the same invention as applicant except the etching process is disclosed as anisotropic instead of cryogenic, Pogge shows that anisotropic and cryogenic etches are equivalent processes (i.e. type of anisotropic etch is a cryogenic etch; Col. 6, Lines 36-39) that form equivalent structure in the art. Therefore, because the two processes are art recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to utilize a cryogenic etch for an anisotropic etch.

Art Unit: 2813

21. Claims 8, 10, 13, 15, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer (U.S. 4,701,999), Cordes (U.S. 6,390,439) and Ohara et al. (U.S. 5,739,585) as applied to claim 1 and further in combination with Regnier (U.S. 6,596,144).

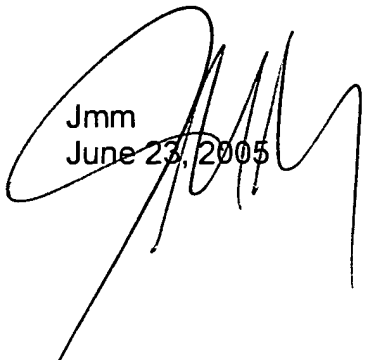
22. With respect to the use of a electron etch, the modified process including Ohara discloses the same invention as applicant except the etching process is disclosed as anisotropic instead of electron, Regnier shows that anisotropic and electron beam are equivalent processes (i.e. type of anisotropic etch is a electron etch; Col. 4, Lines 41-43 of Regnier) that form equivalent structure in the art. Therefore, because the two processes are art recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to utilize a cryogenic etch for an anisotropic etch.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jmm
June 23, 2005



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